CASTAIC DAM MODERNIZATION

CASTAIC DAM, LAKE AND LAGOON are located 45 miles northwest of Los Angeles and provide water for the greater LA area. The dam was built between 1965 and 1974 as part of the California Department of Water Resources (DWR) State Water Project (SWP).

DWR is modernizing its SWP facilities across the state, including Castaic Dam. This consists of identifying and proactively addressing any issues that could impact the delivery of water or the safety of surrounding communities. In Fall of 2019, DWR initiated field work for the Castaic Dam Modernization Program. Over the next several years, DWR will conduct assessments of the dam and associated structures, and undertake construction activities to ensure the dam continues to function safely.

Status of Castaic Dam

In its most recent inspection, the California Division of Safety of Dams (DSOD) rated Castaic Dam as fair – meaning there are no existing dam safety deficiencies that will impact the dam's functions under normal conditions. However, improvements can be made to prevent serious impacts after either an extreme weather or earthquake event.

Based on DSOD findings and DWR's inspections, the initial focus of the Castaic Dam modernization effort will be to explore the conditions of the spillway, left abutment (where the dam meets the valley wall), water supply outlet structures, and the tower access bridge to the water outlets.

Spillway Condition and Extreme Weather Assessments

- Over the years, DWR has carefully and consistently managed the reservoir's water levels so as to not use the spillway. However, changes in weather patterns introduce new uncertainties for future extreme weather events. Climate models show that increased temperatures in California will result in more precipitation falling as rain rather than snow, which will alter river flows throughout the state. DWR wants to ensure that the spillway will function appropriately if it is activated to release water in the future.
- Dam safety engineers have identified that some of the concrete wall and floor panels in the spillway have shifted, which could lead to erosion if the spillway were used to release water. DWR is investigating the causes and impacts to target rehabilitation work and ensure the spillway will work appropriately if a need ever arises.

CALIFORNIA STATE WATER PROJECT

Begun in earnest in the 1950s, the California State Water Project (SWP) is a water storage and delivery system that supplies water to more than 27 million people and provides irrigation for about 750,000 acres of farmland. The SWP spans two-thirds of the length of California and includes 26 dams and reservoirs; 705 miles of canals, tunnels, and pipelines; and nine hydroelectric power plants. In addition to water supply, the SWP provides many benefits, including flood control, power generation, recreation, and fish and wildlife habitat.

The SWP collects rainfall and snowmelt runoff, transports the water through the California Aqueduct, and stores water in one of the many storage facilities like Castaic Lake. The SWP works as a system to manage water supply throughout the SWP, which can vary both seasonally and from year to year. SWP water travels to 29 water contracting agencies that deliver the water to their customers.

Earthquake Resiliency Assessments

- DWR conducted a stability analysis in 2018, which indicated the dam structure will continue to perform safely, even in the event of a major earthquake.
- However, other studies indicate that the outlet structures (the large towers that allow DWR to release water from the reservoir) are vulnerable to collapse in a major earthquake. While this would not cause the dam to fail, it would significantly reduce DWR's ability to release water reliably resulting in potential impacts to water deliveries.
- DWR is currently conducting seismic retrofits of the access bridge to the outlet structures to ensure that personnel can access the outlet structures should an earthquake occur.

What to Expect?

- During the modernization process, as a cautionary measure, DWR lowers the water level of Castaic Lake slightly during the winter months to provide more capacity in the reservoir to buffer winter run-off, reducing the likelihood that the spillway would need to be employed. Additionally, temporarily reduced water levels may be necessary to conduct various repair efforts of the outlet towers and access bridge. These slightly lower water levels will not impact water supply. DWR is working closely with its state partners and local organizations to minimize the extent of recreation impacts.
- DWR will be operating construction equipment in all phases of the modernization program. Some localized noise and increased activity may be expected, particularly during rehabilitation construction efforts.
- DWR anticipates that the modernization efforts of the Program will take about 10 years to complete.

How to Contact Us

For more information on the Castaic Dam Modernization Program, contact:

SWPdamsafety@water.ca.gov